

## WHAT IS CLAIMED IS:

1. In a multiple stage, multiple exposure lithography system, a method comprising:
  - processing a first pair of wafers;
  - exchanging the first pair of wafers to pattern each sequentially using a first reticle;
  - exchanging the first reticle for a second reticle;
  - exchanging the first pair of wafers to pattern each sequentially using the second reticle;
  - exchanging the first pair of wafers for a second pair of wafers;
  - processing the second pair of wafers;
  - exchanging the second pair of wafers to pattern each sequentially using the second reticle;
  - exchanging the first and second reticles; and
  - exchanging the second pair of wafers to pattern each sequentially using the first reticle.

2. A multiple stage, multiple exposure lithography system comprising:

means for processing wafers;

means for exchanging wafers;

means for exchanging reticles;

means for patterning wafers; and

means for controlling the processing, exchanging, and patterning,

wherein the means for processing wafers processes a first pair of wafers;

wherein the means for exchanging wafers exchanges the first pair of wafers to pattern each sequentially using a first reticle;

wherein the means for exchanging reticles exchanges the first reticle for a second reticle;

wherein the means for exchanging wafers exchanges the first pair of wafers to pattern each sequentially using the second reticle;

wherein the means for exchanging wafer exchanges the first pair of wafers for a second pair of wafers;

wherein the means for processing wafers processes the second pair of wafers;

wherein the means for exchanging wafers exchanges the second pair of wafers to pattern each sequentially using the second reticle;

wherein the means for exchanging reticles exchanges the first and second reticles; and

wherein the means for exchanging wafers exchanges the second pair of wafers to pattern each sequentially using the first reticle.

3. A method comprising:
  - a first exposure period during which a first reticle patterns a first pair of substrates;
  - a second exposure period during which a second reticle patterns the first set of substrates and a second set of substrates; and
  - a third exposure period during which the first reticle patterns the second set of substrates.
  
4. In a multiple stage, multiple exposure lithography system, a method comprising:
  - processing a first pair of wafers;
  - exchanging the first pair of wafers to pattern each sequentially using a first reticle;
  - exchanging the first reticle for a second reticle;
  - exchanging the first pair of wafers to pattern each sequentially using the second reticle;
  - exchanging a first one of the first pair of wafers for a first one of a second pair of wafers;
  - processing the first one of the second pair of wafers;
  - exchanging the second reticle for the first reticle;
  - exchanging the second one of the first pair of wafers for a second one of the second pair of wafers;
  - processing the second one of the second pair of wafers;
  - exchanging the second pair of wafers to pattern each sequentially using the first reticle;
  - exchanging the first and second reticles; and
  - exchanging the second pair of wafers to pattern each sequentially with the second reticle.

5. A multiple stage, multiple exposure lithography system comprising:

means for processing wafers;

means for exchanging wafers;

means for exchanging reticles;

means for patterning wafers; and

means for controlling the processing, exchanging, and patterning,

wherein the means for processing wafers processes a first pair of wafers;

wherein the means for exchanging wafers exchanges the first pair of wafers to pattern each sequentially using a first reticle;

wherein the means for exchanging reticles exchanges the first reticle for a second reticle;

wherein the means for exchanging wafer exchanges the first pair of wafers to pattern each sequentially using the second reticle;

wherein the means for exchanging wafer exchanges a first one of the first pair of wafers for a first one of a second pair of wafers;

wherein the means for processing wafers processes the first one of the second pair of wafers;

wherein the means for exchanging reticles exchanges the second reticle for the first reticle;

wherein the means for exchanging wafers exchanges the second one of the first pair of wafers for a second one of the second pair of wafers;

wherein the means for processing wafers processes the second one of the second pair of wafers;

wherein the means for exchanging wafers exchanges the second pair of wafers to pattern each sequentially using the first reticle;

wherein the means for exchanging reticles exchanges the first and second reticles; and

wherein the means for exchanging wafers exchanges the second pair of wafers to pattern each sequentially with the second reticle.